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Ophthalmic Record.

G. C. SAVAGE, M.D., Editor and Publisher.

A DEPARTMENT OF

LARYNGOLOGY, RHINOLOGY AND OTOLOGY,

Edited by GEO. H. PRICE, M.D.

PUBLISHED MONTHLY. AT $2.00 PER YEAR.

ENTERED AT NASHVILLE POSTOFFICE AS SECOND CLASS MATTER.

Vol. IV. Nashville, Tenn., May, 1895. No. 11.

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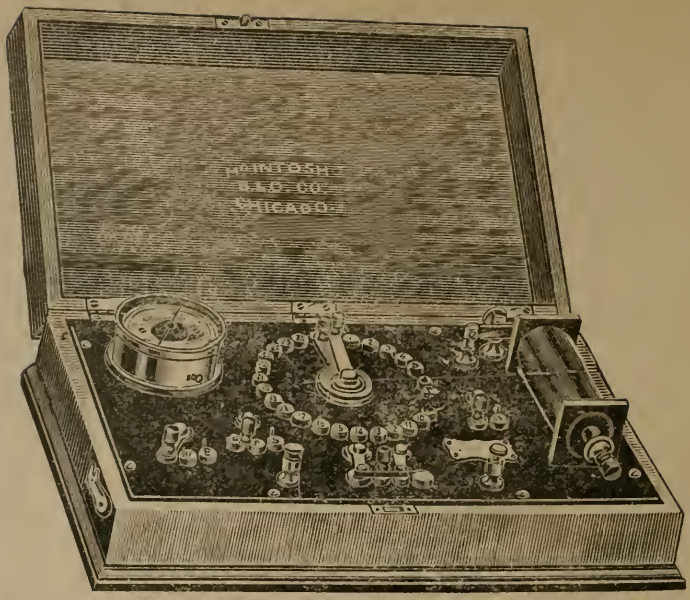
UNIVERSITY PRESS, NASHVILLE, TENN.



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THE
OPHTHALMIC RECORD.

VOL. IV. MAY, 1895. No. 11.

THE EIGHTH PERIODICAL INTERNATIONAL OPHTHALMOLOGICAL CONGRESS, HELD AT EDINBURGH, AUGUST 7-11, 1894.*

By ALVIN A. HUBBELL, M. D.

(Supplementary report.)

ADDITIONAL PAPERS.

Since my report of the Congress was completed, the official transactions have been received. These include other communications which were presented to the Congress, but not read, and they are of such importance that abstracts of them are hereby appended.

TITLE OF PAPERS.

51. The treatment of recurrent vascular ulcers of the cornea and phlyctenular pannus, by DR. M'GILLIVRAY, of Dundee.

52. Notes on a case of implantation of eyelash in the anterior chamber, by DR. M'GILLIVRAY, of Dundee.

53. Degrees of astigmatism, however low, when they annoy should be corrected, by DR. CHISOLM, of Baltimore, Md.

54. Two cases of spontaneous recurring intraocular hemorrhage, by DR. TAYLOR, of Norwich.

55. A problem in neurology—Peculiar iris-reaction with post-neuritic atrophy, by DR. GOULD, of Philadelphia, Pa.

56. The treatment of conical cornea by the thermo-cautery, by DR. EMRYS-JONES, of Manchester.

*From the *Buffalo Medical and Surgical Journal.*

57. Operative procedure for distichiasis, by Dr. Germaix, of Algiers.

58. Pseudo-membranous conjunctivitis and its clinical forms in Egypt, by Dr. Sameh, of Cairo.

59. Javal's ophthalmometer employed for exophthalmometry and ophthalmostatometry, by Dr. Antonelli, of Naples.

60. Simple and combined sclerotomy, by Dr. DeWecker, of Paris.

61. On strabismus, especially strabismus of adolescents in relation to head-conformation, by Dr. Weiss, of Heidelberg.

ABSTRACTS OF PAPERS.

M'Gillivray (51) treats phlyctenular pannus and ulcers of the cornea with an ointment composed of atropine (alkaloid), yellow oxide of mercury, and cocaine (alkaloid) in the proportion of grains i, ii, iii, respectively, with vaseline or lanoline as a base. The ointment may be applied every two hours, to commence with, and gradually lessening the number of applications after healing has commenced.

M'Gillivray (52) also described a case in which a blow had been received on the right eye, nineteen days before the first examination. There was an irregularly shaped leucoma situated horizontally, and a little below the center of the cornea, and lying vertically in the anterior chamber was an eyelash which was adherent by one end to the center of the corneal cicatrix, while the other end rested on the anterior surface of the iris near the angle of the anterior chamber. Removal of the eyelash was refused, and eighteen months after the injury there was no appearance of irritation, and the vision was the same as that of the left eye.

Chisolm (53) protested against two statements of very general acceptance, viz., that irregular curvatures of the cornea, measuring less than 1.00 D., are not worthy of recognition, and that persons who have V $= \frac{20}{20}$ in each eye cannot have astigmatism. He had found that an astigmatism of 0.25 D., often

causes serious eye disturbances, and should then be corrected. "Headache with eye-discomforts in young, healthy looking people, who are not troubled during periods of eye-rest, means a low degree of annoying astigmatism."

Taylor (54) detailed two cases of that rare disease, spontaneous recurring intraocular hemorrhage. In an acute attack, he advised keeping the patient absolutely quiet, with head raised and ice applied to the eye; and giving large doses of astringents, and possibly, when pulse is hard and full, applying three or four leeches near the outer canthus, or, if the pulse has low tension, administering digitalis. Afterwards, ferruginous aperients may be used and the eye shaded and given prolonged rest.

Gould (55) reported a case of a girl twelve years old, who became totally blind from a most intense neuroretinitis in both eyes, followed by an absolute, white atrophy of both optic nerves, and in which there was stabile mydriasis. "The most brilliant and concentrated light thrown suddenly or continuously on the pupil failed utterly to elicit iris-reaction or perception-response. But by seating the child before an open window, the street in front being illumined by sunlight or diffuse daylight, within half a minute or more, the pupils were found to be of normal size." The parents had noticed the same effect when the child was out of doors. The contraction of the pupil was slow, and so was the widening, when the patient's face was turned from the window. The mechanism by which this phenomenon was produced was a problem which suggested several queries.

Emrys-Jones (56) treats conical cornea with the thermo-cautery as follows: Fully dilate the pupil with atropine, anesthetize the cornea with a four per cent. solution of cocaine, and apply Paquelin's thermo-cautery with a moderately small point at red-heat, a little to the outside of the tip of the cone with great caution till the cornea is perforated, as shown by

the escape of a thin spray of aqueous humor. The eye is then bandaged, the patient kept as much as possible on his back, and the pupil widely dilated. The burn becomes healed in seven to twenty-one days. In time the operation may be repeated, if the cones do not disappear after the first operation. Most excellent results were reported.

Germaix (57) operates for distichiasis by a combination of several known procedures. He splits the edge of the lid sufficiently high to raise the anterior segment containing the ciliary roots till the cartilage beneath is exposed six to seven millimeters. A crescent-shaped piece of skin is also resected from the lid above, more or less wide, according to the laxity of the lids. Four sutures are then passed underneath and around the ciliary flap, so as to embrace it, and these are loosely drawn so as to raise and shorten the flap without strangling it and are tied in front. The cicatrization between this flap and the superior part of the lid is allowed to take place without sutures by simple contact. The threads are removed on the third to the sixth day.

Sameh (58) contributes a long article on the clinical history and treatment of pseudo membranous conjunctivitis as seen in Egypt.*

Antonelli (59) described a new application of the ophthalmometer to the measurements of exophthalmos, whether pulsating or not, differences of level of the two eyes, the amplitude, frequence, and direction of oscillations in nystagmus, etc., and various defects of position of the eyes. As an aid in determining some of these conditions, he has added an ingenious attachment to the ophthalmometer, which he calls the "ophthalmostatophantom." This he fully describes and illustrates.

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*There was a good deal of "threshing old straw" at the meeting, but the offering of this article was perhaps the most audacious effrontery of all. This paper had been read at the French Ophthalmological Society, May 10, 1894, and may be found *verbatim* in the "*Bulletins et Memoires de la Societe Francaise d'Ophthalmologie*," 1894, p. 318.

DeWecker (60) presented an interesting paper on simple and combined sclerotomy for glaucoma. After relating something of the history of simple sclerotomy and operative iridodialysis, he says: "The ideal operation in glaucoma is evidently a large scleral incision combined with iridodialysis running the whole length of the cicatrix formed in the trabecular pericorneal tissue." This operation, which he terms "combined sclerotomy," he describes as follows: "After having put the eye fully under influence of eserine, and having instilled, twice only, and that immediately before the operation, one drop of a two per cent solution of cocaine, I introduce my knife, which is six mm. wide, up to the shoulder with which it is provided, at a point one mm. from the transparent border of the cornea, and I generally choose the point lying in the prolonged vertical diameter. Having allowed the aqueous humor to drain off very slowly so as to avoid any prolapse, I insert a very delicate pair of iridectomy forceps into the wound, of which the convex extremities of the blades are carefully rounded so as not to present the least roughness. As soon as the closed extremities are seen at a distance of two mm. from the corneal border, I open the forceps and seize the iris close to the periphery, and I very gently push back the part seized along the posterior surface of the cornea towards the center of the latter. A fairly free hemorrhage generally indicates the detachment, and, as the field of operation may be obscured by blood, one must bear in mind that the forceps, contrary to what one is accustomed to do, must be withdrawn with the blades *open*.

Weiss (61) has made extensive measurement of the face and head in patients affected with strabismus, and finds that these are different in cases of the convergent form from those of the divergent.

The head-diameters, "temporal, aural, greatest zygomatic" are taken, and the difference between the inner and outer orbital edges, the angle of inclination of the orbital entrance, the

pupillary distance, the distance of the "corneal vertex" from the external orbital margin are determined. In divergent strabismus he found that the planes of the sides of the face are directed more exactly forwards (parallel), while in convergent strabismus these planes converge anteriorly, more or less. He also found that in children with hypermetropia the axes of the orbits are directed forwards more exactly parallel, while in myopic children they diverge. He believes that these conformations as determined by the measurements which he describes have a practical bearing upon the treatment of strabismus in children, and should always be taken into consideration.

SCIENTIFIC PROCEEDINGS OF THE SECTION OF OPHTHALMOLOGY OF THE A. M. A., SAN FRANCISCO MEETING, 1894.

Papers in abstract, discussions in full.

SCHOOL CHILDREN'S EYES—A PLEA FOR THE EXAMINATION OF EVERY CHILD'S EYES, WHEN COMMENCING TO ATTEND SCHOOL.

By W. F. SOUTHARD, M. D. of San Francisco, Cal.

"Looking over the annual report of the public schools of the city of San Francisco for the year 1893, I find that there was an average daily attendance of 31,002 pupils between the ages of 5 and 17. Of this number 69 and sixty-three-hundredths per cent. were in the primary grades. This includes all children between 5 and 10 years of age. Twenty-six and six-hundredths per cent. were pupils in the grammar grades, while but 4 and thirty-one-hundredths per cent. were high school pupils. These pupils between say, the ages of 10 and 17, were divided between the grammar grade and the high school. I wish to emphasize the point that, though this does not state the total enrollment of pupils it does very correctly give the daily attendance throughout the year. An analysis of these figures will give us some very im-

portant results. In the first place, you will observe that from the primary grades over one-half, or 50 and forty-three-hundredths per cent., fail to enter the grammar grades. These children at this time are about 10 years of age. At the close of the grammar grades, 71 and sixty-eight-hundredths per cent., or more than three-fourths, fail to enter the high school.

"Finally, to show more vividly the enormous decrease of school attendance between the tenth and seventeenth years, we learn that there is a total loss of 96 per cent. as between the primary school attendance and the high school attendance. Let us see if we can discover the cause for such a tremendous variation in attendance between the three departments of our public schools. We shall find, I think, that not one only, but many circumstances, conspire to bring about these results. The average person will be very likely to say that removals, deaths, sickness and discouragement ought to be a sufficient explanation. I am sure that a more thoughtful examination into the causes will convince us, that not only the above mentioned, but other reasons exist for such a condition of affairs. To my mind this fact is a cause for greater surprise and alarm than that but 4 per cent. of our primary pupils reach the high school, insignificant as is that number. At the age when pupils enter high school a very large number are withdrawn to become wage earners; they must assist in providing for the family. A very large percentage of the parents of these pupils think that completion of the grammar grade is all that their children need to fit them for all ordinary vocations. But this can not be the case at 10 years of age, for the percentage of permanent bread winners of 10 or 12 years of age must be very small in this State.

"We find on examination, that is, by questioning teachers, superintendents and those who are daily brought into contact with children, that the number dropping out because of their inability to keep up in their studies must be very large. It is possible that as we examine this particular cause for loss more

carefully, we may discover the very material we are after by which our proposition may be maintained. I have held for some time in my arguments with educators, that if curves showing the mental capacity of a thousand children of the same age, could be drawn, they would show but a very slight variation one side or the other from a given mean. I believe that we shall find that the brain capacity of our children can be measured with as good results as we have obtained in other branches of anthropometry, a study which has been brought to a very high degree of accuracy. For example, Prof. Bowditch, of Harvard University, Prof. Gihon, of Annapolis, and Prof. Hitchcock, of Amherst, have together measured some 40,000 persons between the ages of 5 and 25; the design being to show the rate of growth of the body, for the different ages. From these measurements a certain mean standard of physical development, height, weight, chest measurement, length of body, sitting and standing, etc., to which the great majority nearly attain, has been found. The deviation above or below this mean is found to be about the same.

* * * * * *

"There is again, a large percentage who fall out of the ranks from among the apparently healthiest and brightest children. For a term or two they may have no trouble, but later on they drop behind, when they in turn become discouraged. We are able to positively state that they have no impoverished bodies, that they have always been well and have never complained before going to school. As they fall behind their classmates they are called mischievous, stupid, and other epithets of like character are bestowed upon them. Many of these children come home every afternoon complaining of headache, or if they have no headache they complain of feeling tired; they get listless and hang about the house. They are being constantly corrected for not paying attention. In fact one of the most frequent complaints from teachers is, that such children never look upon the

work before them more than a moment or two at a time. They are being constantly diverted to whatever is going on about them. It is needless to ask what is the outcome of this condition; the teachers get impatient and become constant fault finders, the child gets discouraged, and the parents in many cases become dissatisfied and remove their children from school. It is among just such material as this that we find the evidences which confirm us in our theory that there can be but one way to treat this whole subject. We find that the very largest proportion of these children have errors of refraction or some disturbance of the visual organ.

* * * * * *

"In pursuing this subject of our public schools a little further we have to note that in the primary grades there was enrolled at the commencement of the year a number equal to thirty-two and thirty-five hundredths in excess of the number in regular attendance. They mostly dropped out during the first two or three weeks of school. Such a number of units thrown upon the community unable to read or write must become in time a serious burden upon it. I am most firmly convinced from personal observation that poor eyes must be a leading factor in causing this great loss. A law compelling a rigid examination of the eyes of every child when he begins to go to school would seem to be demanded. Let every child come to school bearing a certificate stating the exact condition of its eyes. By such means the teacher will be put in posession of facts which will be of inestimable use to him and to his pupils. A plan so simple ought to commend itself to every physician, to every educator and to every parent.

* * * * * *

"In my examination of the eyes of the students of the University of California, for the past five years, I found that the percentage of refractive errors was 68 per cent. Of this number only 6 per cent were myopic. In a detailed analysis of 1,300

errors of refraction I have shown that 75 per cent. were hyperopic in some degree. I found in looking over the list of symptoms attending these cases that pain of eyes, headache, muscular spasms and nervous symptoms generally were confined to this class of cases. The myope but rarely complains of anything more than inability to see at a distance."

DISCUSSION.

Dr. Miller, Los Angeles.—This subject is of great importance. The too familiar statistics of Germany are highly instructive. While examination of the eyes of young school children is highly important we, must inquire still farther as to the causes of these troubles. I am not satisfied in my own mind just what those causes are. Our people seem to be becoming more and more neurotic. Children living in cities should have more outdoor exercise. The result of our higher state of civilization is to develop a decidedly neurotic state in our entire population. I think we must look well to this and develop a state of general health if possible—greater freedom and more outdoor exercises. I think also that particularly in this State the great variety of work ordinarily given to children at schools is prejudicial. It seems to me there are educators undertaking to cover too much ground, and there are too many studies in our schools requiring numerous and rapid transitions of the mind from one subject to another, and maintaining constantly a high degree of nerve tension. It takes some little time for the pupil to get his mind onto a given subject, and about the time he begins to get well under way he must suspend that and take up something else, and so on—we have a constant rapid change from one subject to another, which brings about the nervous tension. This I believe to be operative, as well as several other causes. Much more attention must be given to lighting, warming, and ventilating your school rooms. It might be well when the child enters school to have him present not only a certificate from his physician that he has no ocular impediment, but that he has no nervous or

other impediment to his doing the work ordinarily done by children of a corresponding age.

Dr. L. R. Ryan, Galesburg, Ill.—I think the question is not so much to get at the cause of myopia, because that is well known among the fraternity. The main thing is to get the people to appreciate the disease and take the means to prevent it, and we have to get the people who have an influence with the children interested, especially the teachers. I can recall a great many cases where children had been forced out of school absolutely on account of defective vision; the teachers have classed them as dullards simply because they could not read or study. And it is only a few days ago that a little girl came to me almost crying because the teacher said she was lazy, and she had a very high degree of hypermetropic astigmatism. It was absolutely impossible for the little girl to study; her sister who was a twin was very bright indeed and the two were compared and she was almost driven out of school. I think we ought to enforce upon the teachers the idea of paying attention to hygienic conditions as far as the eye is concerned—to have the light properly arranged, to have the desks arranged so that the children can study in school without getting into a cramped position; to instruct them in hygienic means and to have the idea carried to the parents at home, so that everything can be arranged and they can study properly. You will find in a great many cases, especially among children of the lower classes, that the children are packed off in a dark corner and compelled to study there, while the old people are given all the advantages as far as light is concerned. I think if you will visit the great majority of our public schools and examine the hygienic arrangement as to light and desk facility you will find that they are sadly at fault. I can recall cases where the primary children have been put away down in the basement, where the light was very poor, indeed, and where it was absolutely impossible to see an ordinary pin. Then, too, I have studied the question of the arrangement of the desks.

You take the little children in the primary department and you will find that they have their chins right on the edge of the desk and the book is set at such an angle that it is absolutely impossible for them to read without getting their noses onto the books, and in writing or getting their lessons their chins will be down at this angle. (Describing the angle). Now any one who knows the question at all knows that the eyes are used under such circumstances at a very great strain, and the development of myopia is very easily produced, and I think as a Society we ought to try to get the people and especially the teachers to appreciate those hygienic conditions.

Dr. F. B. Eaton, Portland, Oregon.—Mr. Chairman: What the doctor preceding me said in his closing remarks I think has hit the main point of this matter. We are quite well aware of the injury done to the school children, but the problem is how to work upon the public. Ordinarily the public understands that the myopic eye is the product of school work. It is not, however, clear at all to the public that the hypermetropic eye, and the astigmatic eye are both of them equally productive of misery and discomfort and injustice on the part of adults to children. I hesitate myself to make a motion as far as this Section is concerned in any way that would call attention of the educational portion of our communities to the importance of having the eyes of children examined. It has occured to me and I suggested it to Dr. Southard that some such committee be appointed by this Association or by this Section to endeavor to have the various State Medical Societies formulate certain resolutions so that the various Legislatures, or at least the municipal authorities, might act upon the school teachers in such a way for the benefit of the children as we have heard this morning.

Dr. H. M. Starkey, of Chicago.—Mr. Chairman: I am very glad indeed that I am one of the few here to hear this paper of Dr. Southard's. It is a very important subject. I don't know

that I can add anything to it that hasn't been entered into in the question of the general examination of the eyes of school children. I think the point of the education of teachers is a very important one. We see a great difference in teachers, and their treatment of pupils; for instance, I not infrequently have children sent to me and say the teacher told them they could not come to school again until they had their eyes examined. The teacher has seen that there is something wrong with their eyes, and having said two or three times that they should go and see a doctor and they not having done it, the teacher after a time has said: "You can not came back until you have your eyes examined and see what is the trouble." It certainly is a most important point as we all know from experience. We see the pupils ordinarily—that is if we see them at all—when they have been overtaxing the eyes which are hypermetropic or having hypermetropic astigmatism, go on for years perhaps until a permanent injury has occured. And if by precept and example or even by legislation at a later time, when we have inculcated into the public mind the necessity for such legislation, if anything can be done so that every school child in his study, whether in the public school or otherwise, shall have the eyes thoroughly tested it will be a great advance.

Dr. H. B. Young, Burlington, Iowa—Mr. Chairman: Following the line of thought suggested by Dr. Eaton and the last speaker, I desire to call the attention of the Section to the fact that in many of the states the school teachers are very strongly organized; in fact it is a compulsory organization known as the State Normal, and by addressing our communications to the State Teachers' Association we perhaps could get an entering wedge which would be very valuable in this connection. As far as I individually am concerned, I have for some years past at the invitation of our local Normal Teachers' Association, had some talk on the subject; and I think every member of this Section would be very willing to volunteer such instructive talks

to the Association in his own respective district. I know I have done so upon the express invitation of the Superintendent of the Normal department.

Dr. Southard—I would like to hear from the President; I think he has had some experiences in that line.

The Chairman—It only occurs to me to say that I have had some experience in the examination of school children's eyes and I think that this subject would perhaps be a very profitable one for a special discussion such as we had this year for the objective tests, and to make that suggestion to the Nominating Committee, which I think would be the proper one to bring forward the subject at the next annual meeting. It is certainly an extremely important subject, and one which can be elucidated by general discussion—at least by general discussion we can arrive, I think, at practical means of working out the result that we want to accomplish.

Dr. Southard—I will not occupy much of the time of the Section. I am not egotistical enough to believe that I have written anything at all in this paper that is new to any of the gentlemen present. I did not expect to bring in any array of scientific data, but thought it would be well to have the subject started. There is no member of the Section but who is fully aware and well posted on all statistics that have been made, and during the past twenty years the enormous amount of the statistical matter which has been made is sufficient in itself to prove the point that there is abundance of errors. I want to bring it in shape to get an expression of opinion as to some method of procedure. I myself believe that that idea of engaging the attention of the government of municipalities is a very good method; but my purpose has been to show that the great failure is in the schools in the early age, that is the primary schools. I do not expect that we can correct it after 20 years of age; we don't expect to make changes then. We then give them glasses and let them go on as best they can. It is at the primary schools

that we must commence if we are to make the change. Now the fact is as I said, I do not present any array of statistics but I simply say this: As between the primary schools in this city which have an average attendance of 31,000, and the grammar grade which is the next grade above that, and begins at 10 years of age—I say that with an average of 31,000, say up to 10 years of age, that that attendance at the next grade above, within a comparatively few weeks drops over 50 per cent. That can not be all due to the causes which I have enumerated—a desire to work, and so forth—because we don't have much of that in this State with children at that age. I have had the privilege of speaking to the State Teachers Association in this State; and several times I have talked upon the subject with different County Teachers' Associations; I have had the privilege of bringing this question in a little different but analogous form to the Stanford schools, and I have endeavored to show them that the immediate cause for a great deal of our disturbance, this inability to concentrate the mind, is that children get disturbed because they can not concentrate their minds where they ought to be able to use their eyes, for instance ten or fifteen minutes at a time, and they are the ones who deserve our sympathies whatever it may lead to. I speak of myopia in my paper, but as we know it does not exist in our country to a very large extent. A myopic child can see pretty well. It is hypermetropic and astigmatic cases and, as I have stated, the results that I have obtained are entirely under the average. When I say that hypermetropic and astigmatic cases are 75 per cent. of all, I am within the bounds of my own personal examination of those cases. And I believe this, that if we were to make a change by which we could analyze a larger percentage of the pupils through the schools up to the high school though not beyond, but to the high school point, where they are then fitted to go to work, that this is a very important point. Now I acknowledge that there are a great many other causes as Dr. Miller says; for instance, the hereditary

tendency to disease is very apparent, especially among certain classes. If our Section could give some inducement to this question of the necessity for a compulsory law, there is no doubt in my mind but what the law can easily be carried out. In this State we have a compulsory law for vaccination. It is a law that does not need the approval of every member of the community, but it meets the approval of such a large number that we carry it out very effectually, and it is a law which has been passed upon by the Supreme Court as a constitutional law. Therefore it is not a law that might be put under the head of class legislation. A law which would perhaps be of greater value than even that, if we can allow such a thing, would not only meet the support of physicians and teachers and educators, but of those who are interested and who have children themselves. The methods of getting at it are to be developed later on. I am sure that it could be done, but the teachers and educators and politicians and all this class of people must have this thing brought to them by inducement of those who have had experience, such as the men in this Section have had.

In answer to a question as to what kind of certificate would be required of children, the Doctor replied as follows:

The provision should be that every child when it first comes to the primary school shall bring a certificate to the teacher; that when that child enrolls its name it shall have a certificate saying that its eyes are in a condition which will permit it to take up the ordinary course of studies that children of the same age usually do. Now it does not mean that there are to be paid oculists for every school. But it means that their eyes are normally constituted to do that, and if they are not normally constituted that they are to have glasses fitted to them to pursue the studies which children of the same age take up. You see how it is. I have found in my experience among teachers in the schools here, those so ignorant on the subject, that they have pointed out to me in the schools that such and such children

were probably deficient in mental power, and I have seen those children and can call to mind several of them in fact. But there is one case that came under my observation—a child who was sent to the Home for Feeble-minded Children. That child is wearing glasses and is now one of the brightest pupils of his age. There was nothing at all the matter with the child but inability to concentrate himself upon his work; he could not see; his whole horizon was bounded by just the little about him and his contact with the world was such that he knew very little of it. He was sent to the Home for Feeble-minded Children and the intelligent man at the head of it saw at once there was eye trouble, and that was corrected at once.

(Question was asked as to re-examination.)

I have no doubt but that every five years they should be re-examined. That would be included in the law. It would be easy enough to have the thing worked up in time. The object is now to get at the point that there is a necessity and that we are in favor of this law.

REPORT ON EXAMINATIONS OF THE EYES OF 1,900 SCHOOL CHILDREN OF THE PUBLIC SCHOOLS OF SAN FRANCISCO.

By KASPER PISCHL, M.D., San Francisco.

"Since Professor Jeager, of Vienna, in 1861, had begun the first scientific examination of the eyes of school children, over 200,000 pupils in all parts of the civilized world have been examined. All those investigations have proven that myopia stands in direct proportion to the education of the people. If I venture to ask your attention for a few minutes only to hear the report of the examinations made in the schools of San Francisco, I do not pretend to show you anything new, but I

hope it will be interesting enough to compare the conditions of the eyes of the children in this new country with those of other countries.

* * * * * *

"Of all the myopic pupils, 25.25 per cent. are of American parentage, 25.25 per cent. of mixed American and European parentage, and 49.50 per cent. are of European parentage. * * *

"The fact that myopia is much less prevalent here among children than in Europe, or even in the East, may be explained by their better physical development, caused by abundance of good food, due to our fertile soil, and the almost constant outdoor life permitted by our wonderful climate.

"In conclusion, I have remarked that these school examinations do not pretend to be of the exactness of the office examinations, but I consider them exact enough for statistical purposes."

DISCUSSION.

Dr. S. B. Davis—In the Young Ladies' High School, I found many cases where astigmatism was reducing the vision to twenty two-hundredths. In some cases, their vision was practically good, and a slight correction made wonderful results. The difficulty was chiefly with those whose studies were pressing them, and we came to the conclusion before we examined 500 students in that way, they were getting their education at the expense of their sight.

Dr. H. H. Weer—It strikes me that physicians assume too much in regard to the eye. If there is anything that makes an eye man tired, it is to see some one attempt to do something according to some hypothetic theory and make a dismal failure of it. I can not understand how the use of test cards is any test for hypermetropia or myopia. It strikes me that a person having astigmatism of very low degree and in ill health, would have disturbance of vision. I have been acquainted with one of the assistants of the Manhattan Eye and Ear Hospital in New York City who had a 12 D. astigmatism and never wore a glass

I would like to ask how, in determining the hypermetropia and myopia, do you dispose of the accommodation? If I remember correctly, there is a vasomotor nervous system, and I have had pupils stand up in front of me whose vasomotor and spinal nervous system were so thrilled that they had lost entire control over every spincter muscle in the body.

Now, you will all agree that one of our great troubles is our accommodation. This seems to me to be a point that should be taken into consideration in determining the hypermetropia of school children. In the dark room of the Manhattan Eye and Ear Hospital, we were requested to examine a very marked case of myopia. I examined the case with my opthalmoscope, and I pride myself on the use of it. If I see the blood vessels and the velvety appearance I turn the glass, and if the velvety appearance comes out stronger than the white lines, then I say I have not here a case of myopia. I ran up to 8 D., and got a clear perfect vision of the disc and the velvety condition of the retina. I remarked that it was a case of high degree of hypermetropia, and it was decided by the great Dr. Morrison that it was hypermetropia. There we had a patient who had been diagnosed by several physicians as myopia. That is merely a mistake. It illustrates the fact that if you rely on the test card to decide what the error is, and pronounce that child myopic and attempt to give it correction with the minus glass it would be entirely an error. There is another interrogation that I would like to make for my own information: I notice, according to the chart that as the school life advances, the conjunctivitis advances. Might not that be from eye-strain? Another thing—I have just been so unfortunate as to just conclude fitting patients, when they took a spell of sickness. Upon recovery I found that my glass was entirely useless. This brings up another matter that I wish to advance: Is not the hyperopic eye the normal eye? Is not the emmetropic eye the uncommon eye, called the normal eye?

Dr. H. B. Young—I look upon all these statistics with regard to school children with a little allowance. If we could be sure that those marked for myopia were myopia—but with the methods hitherto employed, I think there is room for doubt about it. There is but one way I can imagine, without an enormous amount of work that we can get at it with anything like accuracy, and that is that we must make ourselves expert skiascopists. I should not depend myself upon the lenses for half the cases. I believe when we get statistics by this method of examination, we will get something very much more reliable.

Dr. W. F. Southard—The fact about statistics is this, that we have had gathered up by a very large number of gentlemen in the last twenty years an enormous amount or statistical matter, which has proved that there is a vast percentage of errors from refraction existing among school children, covering the ages between 5 and 25, besides others that have been carried on in the higher schools to which I referred this morning. The point that has been established is that nearly every child of 5 years of age is hyperopic. The second point that has been established is that mopia is but rarely seen in childhood. It has also been very accurately determined that myopia is a condition which does advance step by step in school life, as we go from grade to grade.

Now, throwing aside all the statistics relating to hypermetropia and astigmatism, one phase of myopia is not so difficult to arrive at. Myopia is very much more easily determined. In fact, it is found that using the same methods which do not show myopia at five years of age, it does show a percentage of myopia increasing with each grade of school life, as we ascend from the primary schools into the grammar schools. If we take the European statistics, especially on myopia, because in Europe this examination has been more especially applied to myopia than to anything else—the most exhaustive paper written in the past ten years has been written and re-published in this

country, and it covers the error of myopia more especially. I wish to call attention to the test which shows that more myopia exists in the peasant schools, and shows it to increase from grade to grade in rapid ratio in Germany. That is an important factor, whatever the methods established may have been. If we analyze the greater portion of these statistics that have been made, it is very curious that they have not given their methods of procedure more accurately, so that we could know what their methods were. I should say the work had been done by the use of a test card, and probably glasses. We have found by a less number of examinations, covering over a considerable portion of our own country, that we do have in America a vastly less percentage of myopia for the same grades than they have abroad. Dr. Shrady, of New York, in reviewing some statistics I have made, said he believed that was the result of older civilizations—that there would be found in them a much greater percentage than in the newer countries. We have a much larger per cent. in New York and Boston than here on the Pacific coast.

Now, it being certain that myopia is the accompaniment of civilization, we, as oculists, should advocate laws compelling the examination of school children. I have not much faith in examinations that are not made by ophthalmoscopic examination in the dark room. I have not examined a single patient without the use of the ophthalmoscope. I do not rely upon a test card. I think that in the entire series of examinations the test has but one value, which was to determine the equivalents. That does not determine the ametropia at all. Out of a large number of students the equivalents run to 60 and 70 per cent. and 20-20. I agree with the writer who states that ametropia is simply a stage in the progress towards myopia. I want to say that I am not particular about the statistics. I think the statistic matter is carried to the extent that we now know we have this enormous percentage of errors. The question is to know

how to prevent it. I have about seven or eight hundred papers of figures in my desk that have not been tabulated, because I concluded that there is enough of that work done to show the facts, and I want to bring before the teachers and others, methods by which the troubles can be prevented in an expeditious manner. I do not think that there is any need of our having any more than a very small percentage of error, if we do examine under the proper tests. It is proven that we have an enormous percentage of children in the primary and grammar schools who are suffering from hypermetropia uncorrected. My position in regard to children's eyes is that if we are to bring about any change in those who are older, we must begin with the school children. If we have an examination made of the eyes of the school children, it is of just as much value as is the physical examination made in larger schools for the determining of their body power to study, as far as the functions go. Upon that point I have dwelt for some years, and feel it is important for us as oculists to attempt to sustain any effort to secure legislation that will obtain compulsory examination of children at school.

H. L. Burrell—Mr. Chairman, I believe that statistics of myopia in children are absolutely unreliable, unless a course of mydriatics is given.

A Member—Mr. Chairman, we did not say in our reports myopia, hypermetropia, or astigmatism. Our reports simply say "errors of vision brought out by the tests." My reports read "such a per cent., as nine, seven, six, five or one-tenth," as the case might be.

Dr. Pischl—Mr. Chairman, I started this examination in order to compare especially the myopia which I might find here with the schools in Europe. I knew from the beginning, and I said this in my paper, that in the schools I could not possibly find out the hypermetropia or the astigmatism. That can only be done in the office. It can not be done in the school room,

and would not have been permitted. It would have kept the child away from the school rooms and that would have been impossible. Many of my scholars were hypermetropic or astigmatic as I said in the paper. As to those which were not, that could not be decided. But I think that the numbers for myopia are reliable. I do not think it is necessary to apply ophthalmoscope for the myopia. The trouble in the conjunctiva, or the irritation, increased with the classes to 41 per cent. showing clearly, or at least hinting that there is eye strain in many cases, and giving us the hint that not such a great portion have normal sight. They have errors which could only be corrected in the office.—THE JOURNAL.

THE IMPORTANCE OF TESTING THE VISUAL ACUITY AND THE COLOR SENSE OF SEAMEN.

By Mr. T. H. BICKERTON, Liverpool, England.

With the object of avoiding collisions at sea, the Board of Trade, in the year 1852, issued an order compelling vessels to carry bright lights and coloured lights, so as to indicate their positions to any other vessels in their neighbourhood. In 1855 Dr. Wilson, of Edinburgh, called attention to the fact that these bright and coloured lights could not prevent accidents from still occurring if the sailors employed on board were poor-sighted or colour-blind. No notice was taken of his remarks. Twenty-one years later Dr. Caldwell, surgeon on the Cunard crack passenger steamer Russia, noticed that one of the look-out men had a glass eye, and that the other man on the same watch was blind in the opposing eye. Dr. Caldwell wrote to Messrs. MacIver, who considered the suggestion to have all the look-out men tested in regard to their eyesight an excellent one, and acting upon it they wrote to each captain and surgeon in ther employment the following letter:—

Cunard Line British and Foreign Steam Packet Company,
8, Water Street, Liverpool,

22nd March, 1876.

Captain———

Annexed is a letter addressed to the surgeon of your ship. You will at once perceive the importance of being assured of the capability of your look-outs, especially at nights: and besides taking the opinion of a surgeon upon the question, you will kindly impress upon your officers that grave responsibility rests with them in their selection of men for a duty which is of paramount importance.—Yours truly,

D. & C. MacIver.

The accompanying letter to the surgeons was as follows:—

Dear Sir—As it is of the greatest importance that a thor-qšno ly efficient look-out should be always kept, we have to request that upon the day of muster you will kindly pay particular attention to the eyesight of the men who are told off as look-outs, so as to ascertain whether those men have sufficiently good vision to enable them to see with natural acuteness, both by daylight and in the evening, and also readily to distinguish the colours of the different lights displayed by ships at night, so that they may report quickly and accurately, and may otherwise fulfill the duties of a thoroughly efficient look-out. In the event of your having any doubt as to the possession of the necessary qualification by any of the men, you will please to report your opinion to the captain, so that these men may not be employed upon a duty for which, in the exercise of your professional discretion, you consider them unfit.—Yours truly,

D. & C. MacIver.

These letters seem to me to have done the Cunard Company great credit, and I cannot help ascribing to the care they exercised in this matter much of the immunity from disaster which enabled them for many years to make their proud boast that they had never lost the life of a passenger.

But so little public attention had been paid to this question of eyesight that in 1875, although the slowing of H.M.S. Vanguard, which led to her being rammed and sunk by H.M.S. Iron Duke, was directly due to the report of a partially blind

"look-out" man that a ship, which never existed except in this man's disordered vision, was crossing the bows, not one single comment was made on the dangers of employing defective. sighted sailors. The real cause of the disaster was neglected, six imaginary causes were found.

Dr. Caldwell, besides calling the attention of his employers to this matter, made it a point to seek an interview with Mr. Thomas Gray, then the Assistant Secretary to the Marine Department of the Board of Trade on the subject of colour blindness, night blindnes, and defective sight generally. Following upon this, the Board of Trade, in the year 1877, for the first time issued rules and regulations dealing with this question. In 1890, the Government, in response to public opinion expressed in Parliament and through the Press, handed the matter over to a committee appointed by the Royal Society.

On September 1st, 1894, the Board of Trade issued fresh tests as to form vision and colour vision to be applied to masters and mates in the Mercantile Marine. If carried out by competent medical examiners this standard of tests would be sufficiently good; but if the object in view is the attainment of perfect safety, so far as human foresight can ensure it for the sea-traveling public, it contains a fatal flaw. This consists in the fact that the eyesight and colour-blind tests become compulsory only when a man enters for a second mate's certificate, instead of, as they ought to be, at the threshold of the sailor's career. The evils arising from this non-compulsion seems to me to be—(1) Colour-blind and defective-sighted boys are being brought up on training vessels for a profession for which they are physically and morally unfitted; (2) colour-blind and defective-sighted boys are being apprenticed for four or five years to the Mercantile Marine Service; (3) colour-blind and defective-sighted men are entering the Mercantile Marine as cabin boys and deck hands; (4) colour-blind and defective-sighted officers with endorsed certificates are to-day sailing the

seas in charge of vessels; and (5) colour-blind and defective-sighted men become pilots. The consequences of the present condition of things are that while there is no real safeguard, the hardships inflicted upon these colour-blind and defective-sighted men who enter for a second-mate's certificate with the laudable desire of rising in the sea service is enormous, seeing that after years of hard work and drudgery, these men, who are often well educated and gentlemanly, are debarred from rising from the hard life of a man before the mast, which they are compelled to follow with no more ambitious prospect in life, or to seek some other employment for which they spend many more years in qualifying themselves. And here let me mention that there are special difficulties in the path of young men of this class abandoning a seafaring life and entering a new field of industry. Let me quote as a recent case in point that of a young man who had been at sea for eight years, and who had been rejected from defective sight on applying for his second mate's certificate, and who was glad to accept employment as a cotton porter at 27s per week. Even this remuneration is only nominal because the employment was not constant, and he would willingly accept 20s per week with a permanent situation. Another young man, who was found to be colour-blind, told me that after having done his best for three weeks to obtain a situation ashore, and utterly failing, he got employment last week on a well-known passenger steamer. A very painful case which came under my notice was that of a young man of high promise who, having been educated on the training ship "Conway," entered the service of a well-known Liverpool shipping firm, in which he behaved with such conspiciuous gallantry in a high storm at sea that he received special commendation from the First Lord of the Admiralty and the bronze medal awarded in such cases. On his eyesight being afterwards tested he was found to be colour-blind, and the brilliant prospects which he and his friends naturally en-

tertained as to his career in life were cruelly dispelled, from a cause over which he had no control. These are only isolated instances out of hundreds which might be cited, of the evils and hardships arising from the absence of compulsory measures.

But if it is a hardship to a man whose defective vision is found out after a few years employment at sea, what is to be said of it in the case of officers who, after having been passed by the Board of Trade as colour-perfect, are now, on the institution of further tests, found to be colour-blind, with the result of being at once deprived of the highest and most responsible and lucrative positions in the Mercantile Marine Service? Such a deprivation, it can readily be understood, means in most cases not only the sudden collapse of ambition in life, but ruin and sometimes starvation to themselves and families. The case of a seaman named John Smith will serve for illustration. Having been twenty years at sea and having successfully passed in turn the examinations for second mate, first mate, and captain, under some of the best shipping companies, he found himself at the age of thirty-three, under the necessity of being re tested at the instance of his employer, whose activity in this direction had been aroused by public attention being so much attracted to the subject. The result was that the officer was declared to be colour blind and that he could no longer hold his position. Though he had previously hardly ever suffered a day's illness, his dismissal so preyed upon his mind that he died shortly afterwards. Another case which might be cited is that of a gentleman aged forty, who had spent twenty-six and a half years of his life at sea and who, in the service of some of the leading steamship companies in England, had used to be first officer. Owing to the discovery of colour-blindness in his vision on his employer insisting on a re-examination, he was immediately reduced from a position of affluence,on one of the finest passenger steamers sailing out of the port of Liverpool, to a condition of penury. The best shipowners do in such

cases provide shore duty of some kind which, though not nearly so lucrative as that from which they had been deposed, is likely to be much better than a discharged seaman usually finds for himself in the open market. In this case the firm found such an opening for him, but it was only after an interval of two years, during which the best employment the man could find was in the service of a Prudential Insurance Company, where, for a pittance of 18s a week, he had to perform daily journeys of twenty miles as a collector.

And now coming to the consideration of the remedies one naturally asks, "How is this objectionable state of affairs to be rectified?" The remedies I would propose are as fellow:—

(1) No boy nor man should be allowed to enter the mercantile marine service till his form vision and colour vision have been adequately tested and proved to be sufficient. This involves little or no difficulty. Every boy on being apprenticed to the sea has to obtain an indenture paper from the Board of Trade Office. Before obtaining this paper, his sight should be made the subject of a careful test, in which case discovery of colour-blindness would arrest, at the proper time in their advances towards a sea-faring life, most of the class who usually develop into officers of the mercantile marine.

(2) Every navigating sailor on going to sea is compelled by law to "sign on"—*i.e.*, to sign articles at the Board of Trade Office. Before allowing the seaman to sign, the shipping clerk should ask for his certificate as to eyesight. To do this would entail no difficulty, since every sailor is required to keep his discharges carefully and show them each time he signs on. To add another to his stock of certificates would, therefore, cause him no additional trouble, and were these two suggestions consistently carried out a colour-blind

sailor would be as rare as he is now common and readily found.

(3) Colour-blindness and defective vision in apprentices already bound by indentures should be in itself a reason for breaking the engagement. The necessity for this will be obvious when it is known that an apprentice of two years' standing can sometimes do the work of an able seaman though he receives perhaps only one-seventh of the pay, and that it is therefore to the interest of an unscrupulous shipowner to retain his services.

(4) Officers who at present hold endorsed certificates and whose names are of necessity known to the Board of Trade, should, as occasion offers, be given shore employment in the Board of Trade Offices; for though some of the better Companies find employment for those they depose on account of colour-blindness, there is a still larger number of cases where no such consideration is extended to them, and where dismissal is necessarily followed by the greatest hardship, and often by absolute ruin.

(5) The method of testing for colour-blindness or any defect in vision must be improved:—

(*a*) By being done by competent medical examiners.

(*b*) In a room specially set apart for this purpose, and fitted with artificial light of a standard which would supply equal illuminating power all the year round and obviate the varying and unsatisfactory results of tests, applied at one time in the strongest light at midsummer, and perhaps another during the fogs of midwinter.

(*c*) This testing room should be open daily in large seaport towns.

In drawing to a close I would like to emphasize the fact that, taking the hundreds of officers in whom colour-blindness has been detected by the Board of Trade, there is absolutely no guarantee whatever, that every man of them is not at the present moment doing duty at sea. In this connection I feel constrained to state openly that the apathy displayed by the Board of Trade throughout the long controversy which has existed between it and the medical profession since the year 1855, has been most deplorable and discreditable to it. Instead of having the best interests of these poor fellows at heart, it has thrown every possible obstacle in the way of reform, and only when Dr. Farquharson called the attention of the House of Commons to the questions in 1890, did the Board make a move from their do-nothing policy. The Board cannot plead ignorance, for the fallacy of their tests and regulations have been pointed out time after time, and notably by Mr. Brudwell Carter, and now, instead of placing the matter on a right footing, it is being tinkered with. The present tests and regulations do not arrest colour-blind boys at their entrance to the sea life, and they do permit colour-blind sailors, even when detected, to continue the sea life, and even take complete charge of vessels. But no condemnation of mine can equal the condemnation passed upon the Board's policy by their own representatives. For the first time in the history of the Board of Trade enquiries, the representatives of the Board of Trade did take, in February last, official notice of the condition of affairs to which I have frequently called attention, and which amounted to little less than a public scandal. In concluding their report upon the stranding of the S.S. "Violet," they said, 'There is one circumstance to which this Court wishes particularly to call attention. After the close of the enquiry, and the respective certificates had been given up in the usual way, it was subsequently found that the mate's certificate bore in red ink the memorandum—'This officer has failed to pass in the examina-

tion of colours,' signed by J. Clark Hall, Register General.' On the face of it, and without some explanation, it seems a most undesirable and reprehensible thing that a master's certificate should be granted to a man who is apparently unable properly to distinguish colours. The danger of entrusting the command to such a man is too obvious to need further comment. And assuming that a correct register of certificates granted be kept, then the Board of Trade's solicitor, conducting the enquiry, should have been instructed on the point in order that he might bring to the notice of the Court the fact, as under certain circumstances it might have had an important bearing upon the subject of the investigation.—Signed, Wm. M. Angus, James E. Woods (Justice), A. Anderson, E. Brooks (Assessors). Such condemnation of the Board of Trade is, I think, well warranted, and well deserved.

In conclusion, it only remains for me to quote from a letter to myself from Mr. T. H. Ismay, of the White Star Line, to show the opinion entertained on the subject by the head of one of the largest and most successful firms owning passenger steamers in the country. After apologizing for his inability to take part in the present interview, Mr. Ismay writes:—"I fully enter into and sympathise with the work that is being done, for I consider it of the utmost importance both for the Mercantile Marine and the railways, that colour-blindness should be eliminated and guarded against. In my connection with the training ship Indefatigable, instances of colour-blindness have come under my notice, and it is most desirable that cases like these should be discussed before the lads are sent to sea. I shall watch with much interest for the result of the interview with the President, and wishing every success to the good work which has been undertaken,—I am, Yours faithfully,

(Signed) Thomas H. Ismay."

A CASE PRESENTING INCOMPLETE REFLEX IRIDOPLEGIA IN THE RIGHT EYE AND INCOMPLETE ACCOMMODATIVE IRIDOPLEGIA IN THE LEFT EYE.

WENDELL REBER, M.D., Philadelphia, Pa.

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Four years ago, I observed an anomaly in pupillary reaction that has not, as yet, appeared in ophthalmic literature. *History.* H. a medical student, æt. 25, noticed long since that sometimes his pupils differed in size; at times one and again the other being the larger. There are no evidences of syphilis or of any cerebral or spinal disorder. The family physician is said to have remarked upon the pupillary inequality some years ago.

Visual acuity as follows:

O. D.—1.00⌒—0.75 Cy. Ax. 180°=5-6.
p.p. with Cyl. only, 9 c.m.

O. S.—1.50=5-12,
p.p. without glass=9 c.m.

Accommodation therefore was normal. The left eye had always been the weaker eye. Ocular movements normal.

Pupillary reaction:

In bright daylight the right pupil was larger; it reacted but faintly to light, (alternate exposure and cover of both eyes). No difference between direct and consensual reaction, if I remember rightly; I have recorded no particular observation on this point.

On the part of the left eye, the direct as well as consensual reaction to light was prompt and energetic. The latter was wider in the dark than the right pupil.

In convergence accommodation the left pupil narrowed a mere trifle, while the right one (which was but faintly mobile to light) contracted promptly and fully. The width of the right pupil was influenced only by convergence or accommodation. If the right pupil was fixed at a certain width by convergence on a stated point, the left pupil (which was influenced only by light) could be brought to an equal width by carefully increasing or diminishing the illumination; conversely, if the left pupil was subjected to a certain illumination, thus fixing its area temporarily, the right pupil could be made to correspond in area by simply inducing convergence on a certain point.

Unfortunately, Mr. H. disappeared from observation, and I could not pursue the subject further. It would have been interesting to establish the exact quantitive relations between the the pupils, and further to note whether in the left eye there was perhaps present a hemianopic reaction. If, on illuminating the right half of the retina of the left eye, the pupil had remained wider than when the left half was illuminated, the Reflex Iridoplegia of the right eye could have been viewed as the result of a disturbance of all the fibres leading from the right sphincter nucleus (including the central inter-nuclear fibres) with the exception of the fibres of the accommodation nucleus; in which case another focus of disturbance between the left sphincter and accomodation nucleus must be granted to account for the left sided accomodative iridoplegia.

It would seem simpler to assume with Haddacus,[1] that the Iris branch of the oculo-motor nerve arises from two roots, one from the sphincter nucleus, and one from the accommodation nucleus. In our case therefore (provided there was hemianopic reaction of the left pupil), we would have to suppose deficient development of the right sphincter nucleus; or with a normally acting left pupil, we must assume a dis-

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[1] Arch. of Ophth. Vol. xviii. p. i.

turbance of the root from the right sphincter nucleus, and also an affection of the root from the left accommodation nucleus. If the hemianopic reaction on the part of the left pupil be absent, the unilateral reflex iridoplegia of the right eye is hardly explainable except on the hypothesis of Haddeus,[2] referring to the two fold root origin of the iris branch of the oculomotorius.

This conception lends itself readily to the idea of a congenital anomaly in our case, inasmuch as pupillary inequality had been noted for many years without the occurence at any time of whatsoever nervous affection. It would seem that if isolated eye muscles with their accompanying nerves can fail of development, so also can it perhaps occur that the right sphincter nucleus and the left accommodation nucleus (or the right sphincter nuclues alone) be deficiently developed.

Among the published histories of unilateral reflex iridoplegia (not manifesting the hemianopic reaction) that of Seggel has a resemblance to my own. In his case, however, the iris phenomenon was preceded by external ophthalmoplegia. The left pupil was not responsive to light but showed marked accommodative reaction, and in bright daylight was as narrow during convergence as the right one.

In bright daylight with convergence set aside, the left pupil was somewhat wider, while in the dark under the same conditions they were equal. During convergence in the dark the left pupil was narrower. A slight enfeeblement of the accommodative reaction of the right pupil would explain the phenomenon. Seggel's case would then be essentially the same in its symptom grouping as our own, only that in his case the conditions of the pupils were just exactly reversed.

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[2]Taken from Perlia's Scheme of the eye mucles and their neuclei. (Arch. f. Ophth. Germ. Edition, Vol. xxxv. 4.)

THE BEST METHOD FOR MEASURING HETEROPHORIA: WITH AN INSTRUMENT TO FACILITATE THE MEASUREMENT.

By C. E. NORTON, M.D., Lewiston, Maine.
Ophthalmic Surgeon to the Central Maine General Hospital, Lewiston, Maine.

As is well-known, there is in heterophoria a tendency to deviation of the visual lines along the horizontal plane, or at some angle with it.

In exophoria this deviation is outward in the horizontal plane; in esophoria, it is inward in this plane, and in hyperphoria it is at an angle of 90 degrees from this plane. In those cases where two forms of heterophoria exist, the deviation is at some angle less than 90 degrees from the horizontal plane.

The method heretofore pursued in measuring any compound heterophoria, as for example, hyper-exophoria, was to measure the deviation in the horizontal plane, and then in a vertical line above this plane. In other words the angular length of the cosine and sine of the angle of deviation were measured.

If we wish to find out the exact angle of deviation, we could do so only by mathematical calculation, or by consulting a table where the problem had been previously worked out.

The above method of measurement seems more or less clumsy and inconvenient.

It would be somewhat similar to measure the position of the axes of cylinders for the correction of astigmatism, by measuring the sine of the angle above or below the horizontal line.

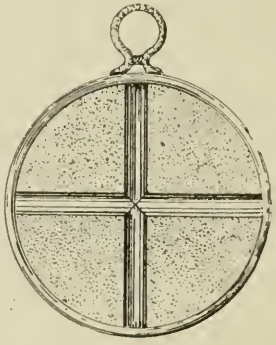
It seems desirable to find out the angle of deviation above the horizontal plane, and to measure the heterophoria along this line. In other words, instead of measuring the base and perpendicular of a right angle triangle to find out the length of the hypothenuse and angle at the base, it is desirable to measure the angle at the base and the length of the hypothenuse.

An important reason for ascertaining this angle of deviation is that we may give muscular exercise along this line by means of prisms.

It is evident that if an eye deviates in a certain direction, the muscles which move it in the opposite direction are relatively weak, and these are the muscles that should be strengthened by exercise with prisms.

I find by the records of the cases which I have examined for heterophoria during the past year, that about 64% had a compound heterophoria; that is, there was a deviation at an angle from the horizontal plane, of less than a right angle.

Now, it is manifestly improper to treat cases of this kind with prisms acting in either the horizontal or vertical plane alone, but the prisms should be placed so as to act directly in the line of deviation if we hope to attain perfect ocular balance



This plan of treatment I have pursued for several months in my practice with considerable success. But I have labored under difficulty in ascertaining the angle and amount of the deviation. This has induced me to invent an instrument, which I will now describe. It consists of a disk of glass having two polished semi-cylindrical grooves ground across it at right angles to each other. The disk is mounted in the usual frame of trial lenses.

On looking through the disk at the junction of these grooves toward a small point of light, two lines of light are seen crossing each other at right angles, each line similar to the one seen through a Maddox rod.

In practice, this disk is placed, with one groove horizontal the other perpendicular, in the right ring of the trial frame, the Risley phorometer or other similar instrument, and a disk of red glass placed in the other ring. On looking through these disks, the patient will see the bright cross with the right eye, and the red spot with the left eye. If the red spot appears to be at the intersection of the lines, there is orthophoria. If the spot appears to be on neither of the lines, the disk should be rotated until the line nearest the red spot appears to pass through the spot. The angle of this rotation can be read off on the frame. This shows the angle of deviation.

Now it is necessary only to measure the distance from the intersection of the lines to the middle of the red spot. This can be readily done by the use of prisms placed over the left eye with their bases elevated above or depressed below the horizontal line to the same degree that the right disk has been rotated. The deviating power of the prism required to bring the red spot to the intersection of the lines, will indicate the amount of right or left hyper-exophoria or hyper-esophoria.

This measurement can be more easily accomplished by means of Jackson's or Risley's prism-mobile, placing either instrument so it will act in the same direction as indicated above, and rotating the prisms until the bright spot appears to be at the intersection of the lines. The amount of deviation can then be read off directly from the scale.

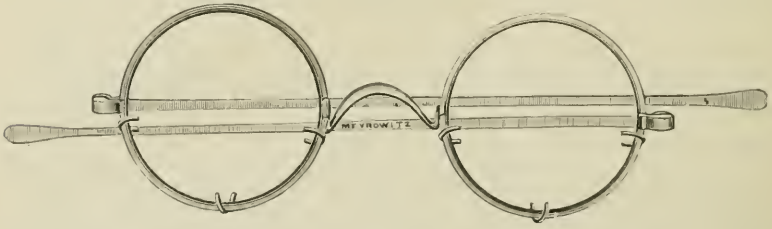
I am indebted to McIntire, Ulmer & Co., 127 South 8th, Street, Philadelphia, Pa., for carrying out my ideas in the construction of the instrument.

A NEW SET OF TRIAL FRAMES.

By WILLIAM E. BAXTER, M.D., Bangor, Maine.

Surgeon to the Easton Maine Eye and Ear Infirmary. Ophthalmic and Aural Surgeon to the Bangor Genral Hospital, to the Home for Aged Women, and to the Children's Home.

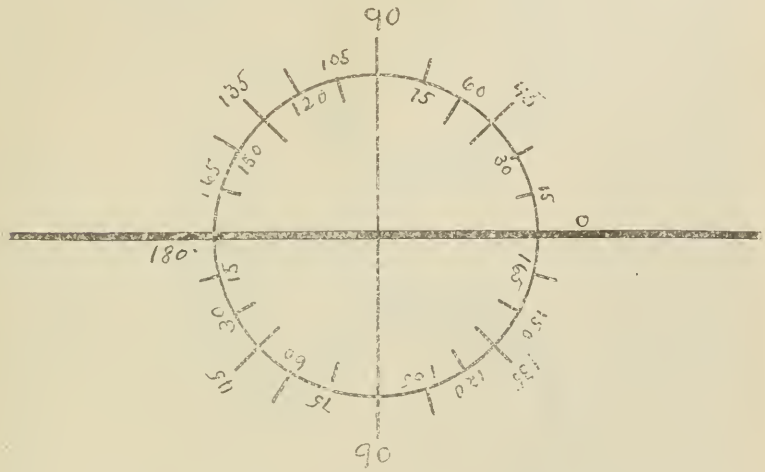
That there is no perfect trial frame on the market is evident from the fact that the opticians advertise large varieties of these frames, and that new patterns are constantly appearing on the market. In the January number of the Annals of Ophthalmology and Otology, 1894, Dr. Prince mentions a light wire trial frame used by Dr. Jackson, of Philadelphia. I have used these frames for some time with so much satisfaction, that I trust that a discription of them may be of interest. The lens carrier consists of a piece of light wire bent in the form of a circle to which are attached three double hooked projections adapting it to the support of two lenses before each eye, the nose piece and temples are also of wire, and the whole frame weighs less than a quarter of an ounce; there is space, when two lenses are before one eye, to slip the cover glass between lenses, so avoiding the trouble of removing one glass to make room for the cover glass, while fitting the other eye in cases requiring more than one glass in the frames. A set of from four



to eight of these frames may be had of different interpupillary distances, and of various height and depth of nose-pieces, these frames are also of great value in obtaining the correct

measurements in ordering spectacle frames, taking the place of the sets of sample frames furnished by the opticians. By useing the cylindric lenses with the axis set at an angle of forty-five degrees to the handle, as I suppose is the habit of most practitioners who have much refraction work to do, all of the angles from 0 to 180 may be obtained by turning one side or the other of the lens out.

The axis of the cylindric lenses may be obtained by the axis-indicator of Dr. Prince, or by means of a simple protractor like the following, draw a circle of about six centimeters diameter,



with a long line through its horizontal diameter, the upper semi-circle is graduated from the right to the left, and the lower from the left to the right, the paper with this drawing is pinned in the cover of the trial case, and when the correct axis is found, the trial frame is removed from the face, the frame held over and parallel to the horizontal line, the center of the lens held in front of the center of the circle and the angle of the axis read off from the circle. As these frames cost only one dollar each, a complete set will not cost more than one of the elaborate trial frames on the market. These frames can be obtained of Meyrowitz, New York City.

Eighth International Congress Of Ophthalmology.

In this issue we complete Dr. Hubbell's report of the Edinburgh Congress. So far as we have been able to observe, this report by Dr. Hubbell suppasses any other report yet published. While it has occupied a good many pages in consecutive issues of the RECORD it has not been too long. We again thank Dr. Hubbell for having thus favored us.

San Francisco Meeting of The American Medical Association.

In this issue we continue the publication of papers in abstract and discussions in full as they were presented in the Section of Ophthalmology at San Francisco. In the next issue we will complete the publication of the report of that meeting. Taken as a whole the work done by the Section last year has shown up well.

The Baltimore Meeting of the American Medical Association.

This meeting was largely attended and much scientific work was accomplished. The program for the Section of Ophthalmology was never longer, nor was the Section ever more largely attended. A few who had promised papers were absent, but every author who was present read his paper before the Section. The length of the program necessitated the adoption of a resolution that the reading of a paper should occupy only ten minutes, and there should be no extention of time in any case; the same resolution limited the discussion on the part of each individual to five minutes. If this rule had not been adopted the program could not have been more than half finished during the four days session. The work done will compare favorably with that of any former meeting of the Section. Dr. Jackson, the Chairman, and Dr. Wurdemann, the Secretary, of the Section deserve much credit for the success of the meeting. In the next issue we will have more to say about the Baltimore meeting.

Dr. Lucien Howe was elected Chairman, and Dr. Frank Allport Secretary, of the Section of Ophthalmology for the Atlanta meeting, next year. Within a few minutes after their election they commenced the work of securing promises of papers. There can be no doubt but that these officials will succeed in making the meeting of the Section at Atlanta one to be long remembered because of the scientific results accomplished.

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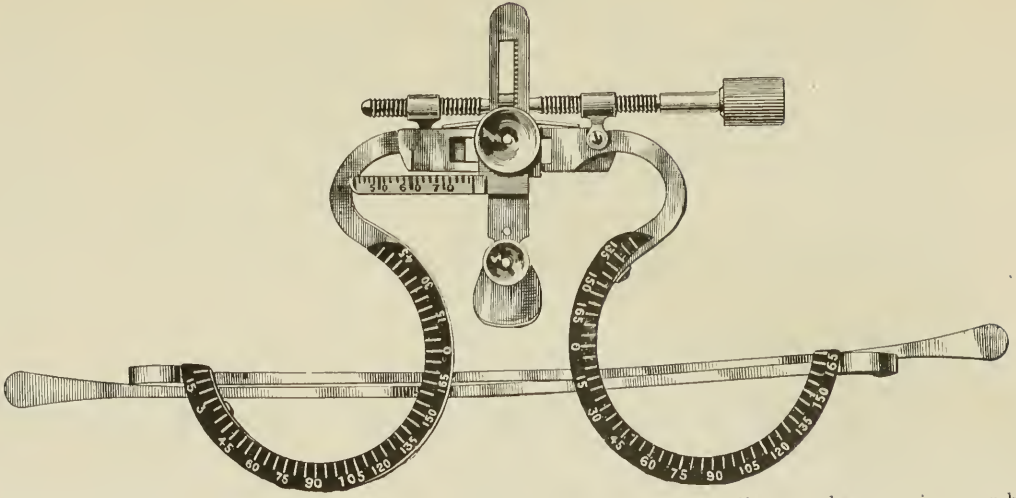

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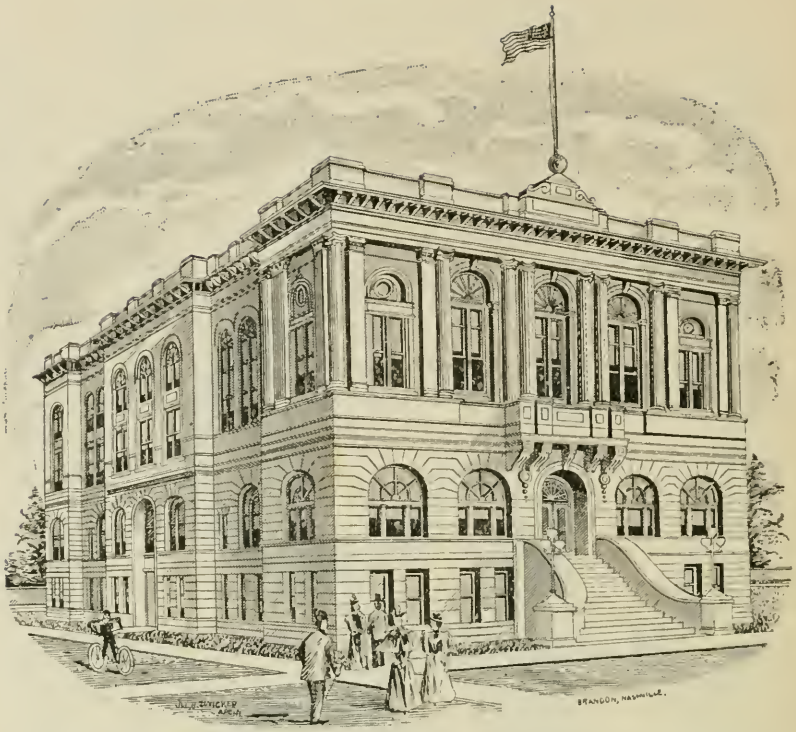

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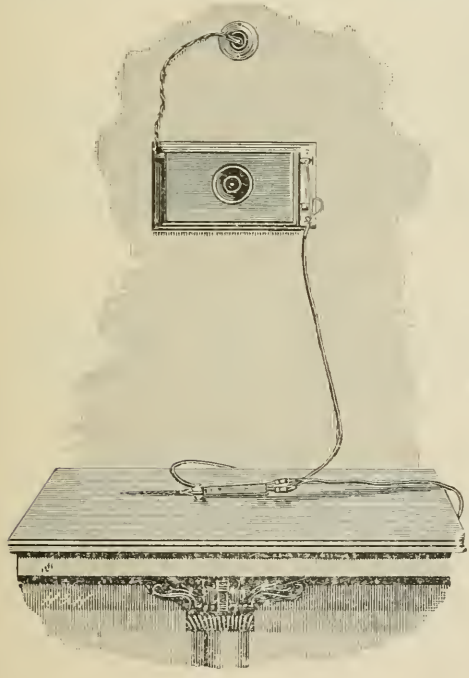

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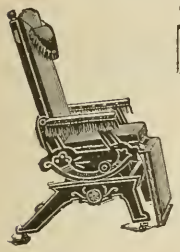

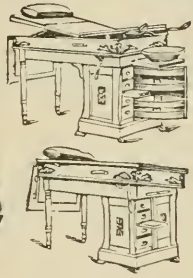

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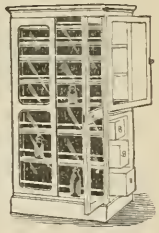

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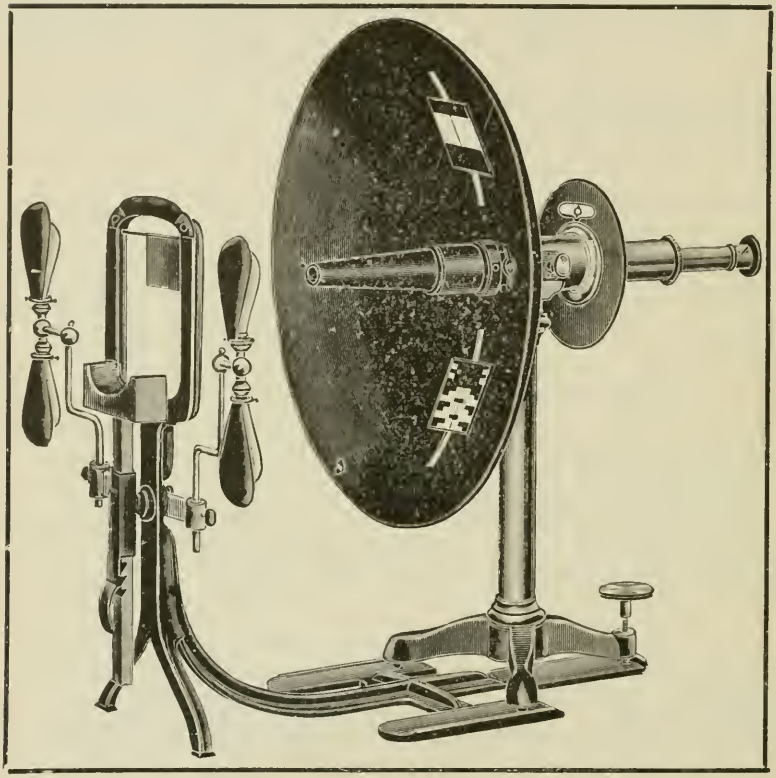

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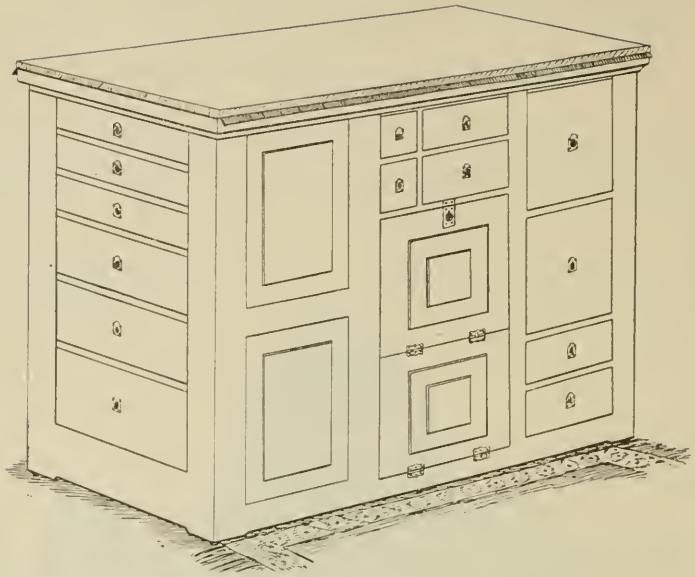

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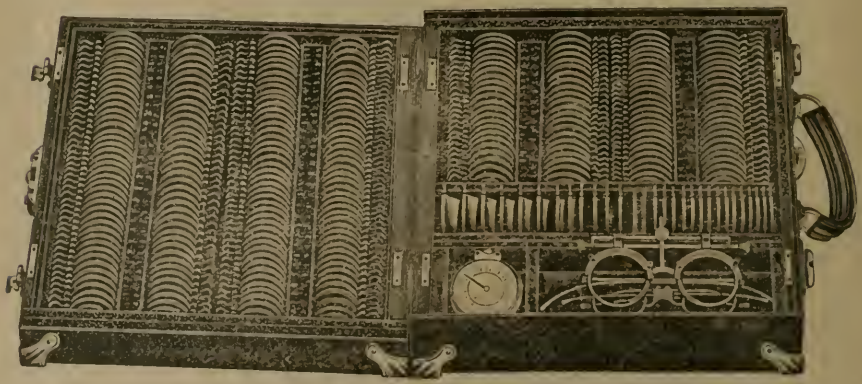

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